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| **Project 1.2.10 Glider Design Challenge #1** |

Introduction

Have you ever tried to fly a glider? Have you made something with balsa wood before? In this project you will learn to do both. This design challenge provides glider constraints to create a glider design using the AERY software package.

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Equipment

* Engineering notebook
* Pencil
* PC with AERY glider design software
* Printer

Procedure

1. Use the Challenge One glider constraints shown below.

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| Main: |  | Stabilizer: |  |
| Fuselage Length (cm) | 30 | Span (cm) | 25 |
| Wing Location (cm) | 13 | Root Chord (cm) | 8 |
| Stabilizer Location (cm) | 22 | Taper Ratio | 0.6 |
| Vertical Location (cm) | 22 | Leading Edge Sweep Angle | 15 |
| Nose Mass (g) | 8 |  |  |
| Wing: |  | Vertical Tail: |  |
| Span (cm) | 50 | Height (cm) | 10 |
| Root Chord (cm) | 10 | Root Chord (cm) | 8 |
| Taper Ratio | 1.0 | Taper Ratio | 0.7 |
| Leading Edge Sweep Angle | 0 | Leading Edge Sweep Angle | 15 |
| Launch Velocity (km/hr) | 20 |  |  |

1. Start the AERY glider design software.
2. Click File then New Design.
3. Create a glider design that meets the constraints provided.
4. Modify the design as necessary to achieve stability. Confirm the aircraft stability by clicking Analysis then Will It Fly?
5. When your design is stable, print out two copies of the design.
6. Save the design to the location indicated by the teacher.
7. Enter one design print in your engineering notebook for use with the Challenge Two. The second print will be for your final design report.

**Conclusion**

1. Explain which glider or aircraft term were difficult to understand and the correct definition.
2. Explain any challenges if someone else were to construct your design using the AERY print.
3. Explain any challenges faced using the AERY software and how you overcame those challenges.